



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,872	05/30/2006	Moritaka Kimura	1215.004	1441
7590 Richard L. Sampson Samson & Associate Suite 510 50 Congress Street Boston, MA 02109		09/24/2010	EXAMINER WILLIAMS, CLAYTON R	
			ART UNIT 2457	PAPER NUMBER
			MAIL DATE 09/24/2010	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/561,872	Applicant(s) KIMURA ET AL.
	Examiner Clayton R. Williams	Art Unit 2457

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 September 2010.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____
- 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

1. Claims 1-20 are pending in this application per amendment.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/10/10 has been entered.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 1, 3, 4, 7 and 11-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The originally filed claims and specification fail to offer support for the limitation "so that each computer PCi is configured for direct data exchange with substantially every other computer PCi." As interpreted by Examiner, "substantially every other

Art Unit: 2457

computer PCI" suggests that computer PCI exchanges data with "every other" of the plurality of computers PCI, i.e. the selection method bypasses every second computer PCI. If Applicant wishes to overcome this new matter rejection, Examiner suggests that the limitation be amended to conform to the teachings of the instant application (see para. 108 of the instant spec provides for a computer PCI to communicate with each of the remaining computers in the plurality of computers PCI and Applicant remarks, pg. 9, filed Aug. 27, 2010).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by**

Kaufman et al. (7590984: hereinafter Kaufman).

For claims 1, 3, 4, 7 and 11-14, Kaufman discloses a system for the cross-correlation of data, comprising:

a plurality n of computers PCI, n being a real number which is equal to or greater than 2, and i being an integer from 0 to n-1 (col. 1, lines 29-35: "The next logical step in developing computational capability for handling these large problems is to distribute these problems over multiple machines loosely connected in a "grid".);

wherein said plurality n of computers PC_i are communicably coupled via a connector with a switch (col. 1, lines 29-35), so that each computer PC_i is configured for direct data exchange with substantially every other computer PC_i (col. 15, lines 1-5 and 14-20: the passages disclose the VPP computing agent nodes of the grid computing system directly (i.e. peer-2-peer) exchanging data among peers; col. 11, lines 42-45, col. 8, lines 22-32 and col. 6, lines 40-50 further buttress contention of art disclosing "direct" communication between computing agents of the grid computing system);

each of said plurality n of computers PC_i further including a storage device configured for storing data X_i (col. 1, lines 29-35: Each of the connected grid computers contains local storage);

data X_i being divisible into n partial data units X_{i(j)}, j being an integer from 0 to n-1 (col. 4, lines 15-40: The cited passage discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are parceled out to individual grid workstations);

data X_i being divisible into n partial data units X_{i(k)}, k being an integer from 0 to n-1 (col. 4, lines 15-40);

a computer PC_k, wherein computer PC_k is configured for cross-correlation processing of partial data X_{i(k)} (col. 4, lines 54-58: "If each of the four problem partitions for this example are dispatched to four different machines, then the cells in the outer shell have one or more nearest neighbors that are located on a remote machine.");

wherein each computer PC_i of said plurality n is configured-to for a first exchange of a partial data unit with a partner computer chosen from said plurality n of computers,

Art Unit: 2457

so that no more than one computer PC_i is idle during said first exchange (col. 4, lines 58-60: "The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle."); and

wherein each computer PC_i of said plurality n is configured for an additional exchange of additional partial data units with a partner computer chosen from said plurality n of computers, so that no more than one computer PC_i is idle during said additional exchange (col. 4, lines 58-60).

For claim 2, Kaufman discloses the system of claim 1, wherein each computer PC_i of said plurality n is configured to exchange with a partner computer n-1 partial data units when n is even, and n partial data units when n is odd (col. 4, lines 54-58: "If each of the four problem partitions for this example are dispatched to four different machines, then the cells in the outer shell have one or more nearest neighbors that are located on a remote machine.").

For claim 5, Kaufman discloses the system of claim 4, comprising an alpha turn, alpha being an integer of 0 and more, wherein the alpha turn includes partial data units, numbering from n xalpha to (n xalpha+n-1), and comprising partial data unit X_i(k+xalpha), the partial data unit X_i(k+nxalpha) being located on each computer PC_i, wherein the computer PC_k is configured for the cross correlation processing of partial data unit X_i(k+nxalpha) (col. 4, lines 54-58).

For claim 6, Kaufman discloses the data distribution method according to claim 4 or 5,

Art Unit: 2457

wherein each computer PC_i of said plurality n is configured for partner exchange of n-1 partial data units with a partner computer, so that no computer is left idle, when n is an even number (col. 4, lines 58-60: "The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle".).

wherein each computer PC_i of said plurality n is configured for partner exchange of n partial data units with a partner computer, so that no more than one computer is left idle, when n is an odd number (col. 4, lines 58-60: "The problem, as defined, requires that every machine exchange data with machines handling adjacent regions of space at every cycle".); and

wherein each computer PC_i of said plurality is configured to exchange partial data units with each partner computer once (col. 4, lines 15-40: The cited passage discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are parceled out to individual grid workstations. As disclosed, the passage envisions a grid wherein unique partial data is exchanged between partners every exchange cycle).

For claim 8, Kaufman discloses the system of claim 1, in which the computers PC_i of said plurality n are general purpose computers (col. 1, lines 29-35: "The next logical step in developing computational capability for handling these large problems is to distribute these problems over multiple machines loosely connected in a "grid".).

Art Unit: 2457

For claim 9, Kaufman discloses the system of claim 1, comprising a network medium configured for full duplex communication (col. 1, lines 29-35).

For claim 10, Kaufman discloses the system of claim 1, in which said data are time series data recorded from radio telescopes (col. 2, lines 22-28: The cited passage discloses grid computing systems being utilized to analyze radio telescope data).

For claim 15, Kaufman discloses a system as in one of claims 11-14, comprising a network medium configured for full duplex communications (col. 1, lines 29-35).

For claim 16, Kaufman discloses the system of claim 1, wherein n is an odd number (col. 4, lines 54-58: "If each of the four problem partitions for this example are dispatched to four different machines, then the cells in the outer shell have one or more nearest neighbors that are located on a remote machine.").

For claim 17, Kaufman discloses the system of claim 1, wherein $n=2^k + 1$, wherein k is an integer greater than 0 (col. 4, lines 54-58).

For claim 18, Kaufman discloses the system of claim 1, wherein $n=2^k - 1$, wherein k is an integer greater than 0 (col. 4, lines 54-58).

For claim 19, Kaufman discloses the system of claim 1, wherein each partial data unit is exchanged only once (col. 4, lines 15-40: The cited passage discloses a distributed modeling algorithm in which portions of a complex biological modeling problem are

Art Unit: 2457

parceled out to individual grid workstations. As disclosed, the passage envisions a grid wherein unique partial data is exchanged between partners every exchange cycle).

For claim 20, Kaufman discloses the system of claim 1, wherein in each data exchange, the volume of the data exchanges remains constant (col. 4, lines 15-40).

Response to Arguments

Applicant argues the 112, 1st and 2nd rejections regarding "so that each computer PCi is configured for direct data exchange with substantially every other computer PCi" are without merit. Examiner respectfully disagrees. The crux of Examiner's rejection centers on "substantially every other". Examiner cannot discern from either the claims or the specification what bounds are attached to "substantially every other". More succinctly stated, a person of reasonable skill cannot discern how many, if any, of the computers PCi with which each computer will not engage in direct data exchange. As addressed in the 112, 1st rejection, Examiner contends that the limitation may reasonably be interpreted to claim a computer PCi only communicating with every second of the plurality of computers PCi, i.e. half of the plurality of computers PCi does not directly communicate with the computer PCi.

Applicant further argues Kaufman does not teach "computers configured for direct data exchange". Examiner respectfully disagrees. Applicant's remarks explicitly reference Kaufman, col. 15, lines 1-5 and 14-20. The cited passages explicitly disclose that VPPs may engage in direct communication via peer to peer sessions. Moreover, Kaufman, col. 13, lines 38-45 discloses an embodiment in which a different compute

agent processes each VPP comprising a distributed problem. As such, the limitation in contention does read on Kaufman. Even if Kaufman does disclose a plurality of VPPs executing on a single compute agent (a point to which Examiner does not acquiesce), as long as each VPP for a given problem executes on a different compute agent, then the limitation stands rightfully rejected per Kaufman.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clayton R. Williams whose telephone number is 571-270-3801. The examiner can normally be reached on M-F (8 a.m. - 5 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2457

/Clayton R Williams/
Examiner, Art Unit 2457
9/13/2010

/ARIO ETIENNE/
Supervisory Patent Examiner, Art Unit 2457